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bryos, now ready to burst the shells of the eggs, extend their tails, make light oscillations with the fan and its appendages, so as to rid itself gradually of the young lobsters, which it succeeds in doing in a few days.

"The young lobster, as soon as born, swims away from its parent, rises to the surface of the water, and leaves the shores for the deep waters of the sea, where it passes the earliest days of its existence, in a vagabond state for a period of from thirty to forty days. During this time it undergoes four different changes of shell, but on the fourth, it loses its natatory organs, and is therefore no longer able to swim on the surface of the water, but falls to the bottom, where it has to remain for the future; according, however, to its increase of size, it gains courage to approach the shore, which it had left at its birth. The number of enemies which assail the young embryos in the deep sea is enormous, thousands of all kinds of fish, mollusks, and crustacea pursuing it continually to destroy it. The very changing of the shells causes great ravages at these periods, as the young lobsters have to undergo a crisis which appears to be a necessary condition to their rapid growth. In fact, every young lobster loses and remakes his crusty shell from eight to ten times the first year, five to seven the second, three to four the third, and from two to three the fourth year. However, after the fifth year, the change is only annual, for the reason that were the changes more frequent, the shell would not last long enough to protect the ova adhering to the shell of the female during the six months of incubation. The lobster increases rapidly in size until the second year, and goes on increasing more gradually until the fifth, when it begins to reproduce, and from this period the growth is still more gradual."—R. K. WOOD, in *Land and Water, London*.

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## GEOLOGY.

WHAT IS A GEODE?—The term *geode* is applied by geological writers to two distinct conditions and character of rocks, in so promiscuous a manner that the reader, without specimens, has no means by which to determine, with any degree of certainty, what it is of which the writer is treating. Let me illustrate by numbered examples:

No. 1. In many rocks there are irregular cavities, of moderate size, whose inner walls are studded with mineral crystals. The walls of these cavities are of the same material as the general mass of the rock in which they occur, and in no way distinguishable from it, the cavity being a mere opening in the general mass of the foundation.

No. 2. Rounded masses of quartz, often Chalcedonic, occurring enclosed in limestone, etc., but as foreign in character, from the mineral enclosing them, as raisins are to the mass of a pudding by which these have been surrounded in the process of cookery. When destructive weathering of the rock containing these takes place, these balls fall out into the soil, where they remain wholly unattacked by the elements.

These silicious nodules vary in size from that of an apple to that of

a human head. They usually enclose a cavity, the walls of which are studded with crystals of one, and often of several minerals, frequently presenting great beauty of appearance. The former of these (No. 1) is abundant in the Niagara limestone of the New York State Survey; while the latter (No. 2) occurs in profusion in the limestones of Indiana, Missouri, and other portions of the Mississippi Valley.

The two objects above described, though so utterly unlike, are without any distinction called *geodes* by geological writers. And why?

That the two objects, so essentially different, should be known by distinctive names seems wholly self-evident. The present usage of writers in coupling both under one and the same name, as they constantly do, is productive of extreme confusion, while the practice is not justified by any apparent necessity whatever.—R. W. HASKINS, *Buffalo, N. Y.*

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## PROCEEDINGS OF SCIENTIFIC SOCIETIES.

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AMERICAN ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE.—NATURAL HISTORY SECTION. *Chicago, Ill., August 5-12, 1868.* GEN. G. K. WARREN presented a paper "On certain Physical Features of the Upper Mississippi River." He had been detailed to survey the Upper Mississippi, Minnesota, and Wisconsin rivers, with a view to improving the navigation and constructing bridges which should afford the least obstruction to navigation practicable; in doing this he has reached results, which, besides being important to the objects for which they had been sought, were believed to be of general scientific interest. He had been early impressed by the immense excavations made in the Silurian rocks through which these rivers now flow. This great excavation above the junction of the Minnesota and Mississippi rivers, is occupied, not by the Mississippi river but by the Minnesota river. The bed of this latter, however, for about one hundred and ten miles below Big Stone lake, is partially granitic. Big Stone lake occupies thirty miles of this great excavation, and Lac Travers about twenty. The two lakes are separated by a strip of low land, but a few feet above their level, and about nine hundred and eighty feet above the ocean level. This is a deposit made by the infant Minnesota river as it enters this great excavation, and during heavy rains the streams send their waters to Hudson Bay as well as the Gulf of Mexico. The great excavated valley of which we have been speaking, is at this point about a mile wide, and the bluffs, or sides, composed of bowlders and gravel, are about one hundred and fifty feet high. Were one inclined to believe that the present streams in a long period of time would be sufficient to excavate the valley of the Mississippi, he must admit their insufficiency here. In fact these feeble streams, so far from having made this great excavation, are doing their best to fill it up.